

Serial No. 10/724 339

Amendment dated November 20, 2005

Reply to Office action of May 20, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A lifter, comprising:
  - an elevator plate fitted with a set of cam lifters distributed around an axis;
  - a multiple-lobe cam disposed in the edge of a hollow cylinder around said axis, andsuch that said set of cam lifters ride along said edge and provide for straight lifting and lowering of the elevator plate; and
  - a transmission and motor for turning the multiple-lobe cam relative to the elevator plate.
2. (Original) The lifter of claim 1, wherein:
  - the multiple-lobe cam includes symmetrical sided lobes that permit the transmission and motor to operate in a single direction for both said lifting and lowering of the elevator plate.
3. (Original) The lifter of claim 1, wherein:
  - the multiple-lobe cam includes three symmetrical sided lobes that provide a three-point support of the elevator plate.
4. (Original) The lifter of claim 1, wherein:
  - the multiple-lobe cam and cam lifters provide flat spots on which to rest at minimum and maximum heights of elevation of the elevator plate.

5. (Original) An automated warehouse system row cart, comprising:

a rail car for trucking pallet loads within an automated warehouse;

a top tray disposed on top of the rail car and providing for lifting and lowering said pallet loads;

a lifter set inside the rail car and supporting the top tray, and providing for straight lifting and lowering;

an elevator plate included in the lifter and fitted with a set of cam lifters distributed around an axis;

a multiple-lobe cam disposed in the edge of a hollow cylinder around said axis, and such that said set of cam lifters ride along said edge and provide for straight lifting and lowering of the elevator plate; and

a transmission and motor for turning the multiple-lobe cam relative to the elevator plate and disposed within the rail car.

6. (Original) The row cart of claim 5, wherein:

the rail car provides for docking with an aisle cart in said automated warehouse.

7. (New) A lifter, comprising:

a triple-lobe cam with a base and an inner collar;

an elevator plate that includes three fixed cam lifters to correspondingly ride on the triple-lobe cam, and an outer collar which mates with said inner collar;

a transmission with a ring gear attached to said base, and a worm gear to receive unidirectional drive from a motor to provide changes in the vertical position of the elevator plate.

8. (New) The lifter of Claim 7, further comprising:

a shaft included in the transmission with a pair of bearings slipped inside said inner collar to stabilize and to allow the triple-lobe cam to turn.

9. (New) The lifter of Claim 7, further comprising:

a series of flat spots disposed on matching surfaces of the triple-lobe cam and the fixed cam lifters for minimum and maximum heights of the elevator plate.

10. (New) The lifter of Claim 7, wherein the elevator plate is the mirror image of, and fits over, the triple-lobe cam, such that the lobes of each mate and ride over the other.

11. (New) The lifer of Claim 7 wherein the outer collar of the elevator plate slips over the inner collar of the triple-lobe cam.